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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,957	08/22/2003	Anoop K. Bhattacharjya	AP166TP	8410

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EXAMINER

KIM, CHONG R

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/645,957	Applicant(s) BHATTACHARJYA, ANOOP K.	
	Examiner Charles Kim	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7 and 10 is/are rejected.
- 7) ☒ Claim(s) 2,3,8 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/22/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-7, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Fan, U.S. Patent No. 7,197,161 (“Fan”).

Referring to claim 1, Fan discloses a method for embedding data in an input digital medium, comprising the steps of:

(a) generating a set of multi-level screens [col. 3, lines 53-67. Fan discloses two two-layer screens, which are interpreted as the set of multi-level screens], each multi-level screen being generated by selecting a set of colors that comprise the colors that can be output by that multi-level screen [col. 3, lines 17-39 and figure 2. Figure 2 illustrates how each screen is generated according to the set of colors for each selected Cyan (C), Magenta (M), Yellow (Y), and Black (K) color space. Note that each color space (C, M, Y, and K) includes a set of colors that represent the different color levels for each respective color space. For example, the C color space includes a set of colors that represent the different levels of cyan that make up the C color space. This interpretation of the claimed “set of colors” is consistent with Applicant’s description on page 5, lines 2-6, in their specification, which discloses choosing a set of M colors

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c_m , wherein c_m represents different levels of a single color and lies in the interval $[0,1]$. In addition, Applicant clearly distinguishes the description of the set of colors for a *single color* on page 5, with the description of extending the same technique to *multiple colors* on the bottom of page 6. Thus, the “set of colors” in claim 1 is interpreted as a set of color levels for a single color; in which case, Fan’s teaching of generating a multi-level screen by selecting a particular color space that includes a set of colors meets the claimed limitation of generating a multi-level screen by selecting a set of colors].

(b) screening the input digital medium with the generated multi-level screens using a dither matrix and a set of level matrices [col. 3, lines 33-59. Note that the “screen threshold matrix,” in col. 3, line 34, is interpreted as being analogous to the claimed “dither matrix”. In addition, the two two-level screens that are applied to the halftoning process, in col. 3, lines 54-55, are interpreted as the set of level matrices.¹]; and

(c) selecting, for each of select number of pixel locations in the input digital medium, one of the level matrices, based on a message symbol to be embedded at that pixel location, to create an output, thereby embedding data in the input digital medium [col. 3, lines 53-65. Fan explains that two two-level screens are applied in the halftoning process to embed the data in the input image and create an output embedded image. The first screen is applied to the input image for the “areas that correspond to the symbol to be embedded (object),” while the second screen is

¹ The “set of level matrices” and the “set of multi-level screens,” recited in claim 1, are interpreted to be equivalent in light of Applicant’s description of the two terms in their specification. In particular, Applicant explains that Fig. 6 shows two different level matrices C^1 and C^2 (Specification, page 5, lines 25-27), and Fig. 7 shows a set of multi-level screens C^0 , C^1 , C^2 , and C^3 (Specification, page 6, lines 17-18). The Examiner notes that both Figs. 6 and 7 show essentially the same thing. Applicant further explains that the set of multi-level screens comprises four 64-level matrices (Specification, page 6, lines 17-20). Hence, in light of the analogous descriptions for the “set of level matrices” and “set of multi-level screens,” coupled with the lack of any distinction between the two sets in the Applicant’s specification, the Examiner has interpreted both terms, “set of level matrices” and “set of multi-level screens,” to be equivalent.

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applied for the background area. Accordingly, the first screen is selected for an input pixel location where a message symbol is embedded, while the second screen is selected for an input pixel location where a message symbol is not embedded. Therefore, one of Fan's screens (level matrices) is selected based on the message symbol to be embedded at the input pixel location].

Referring to claim 4, Applicant's use of "or" between two or more limitations merely requires that the prior art meet one of the limitations. Here, Fan further discloses that for each selected pixel location in the input digital medium, the level matrix used to create the corresponding output is selected independently of the neighboring input and output colors [col. 3, lines 53-57. As noted above (claim 1), the level matrix used to create the corresponding output depends on whether or not the message symbol is embedded in the input pixel location. Thus, it does not depend on the neighboring input and output colors].

Referring to claim 5, see the rejection of claim 1 above. Fan discloses an apparatus (figures 1 and 2) comprising a means (20) for performing the steps described in claim 1 above.

Referring to claim 6, Applicant's use of "or" between two or more limitations merely requires that the prior art meet one of the limitations. Here, Fan further discloses that the apparatus comprises a computer (figure 1).

Referring to claim 7, see the rejection of claim 1 above. Fan discloses a computer (20) for performing the steps described in claim 1 above (figures 1 and 2). The Examiner notes that a machine-readable medium having a program of instructions for directing a machine to embed data in an input digital medium is inherent in Fan's teaching of a computer that performs the steps described in claim 1 above.

Referring to claim 10, see the rejection of at least claim 4 above.

Allowable Subject Matter

2. Claims 2-3, 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Xu et al., U.S. Patent No. 7,148,999 discloses embedding data in an input digital medium using two multi-level screens.


b. Wang, U.S. Patent No. 6,252,971 discloses embedding data in an input digital medium by selecting matrices (200, 210) based on the message symbol to be embedded at the input pixel location.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 571-272-7421. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ck

March 30, 2007